University of Venda
Creating Future Leaders

DEPARTMENT OF PLANT AND SOIL SCIENCES

HRT2241 – PLANT PROPAGATION

HORTICULTURAL SCIENCES
UNIVERSITY OF VENDA
MODULE SYLABUS – SECOND SEMESTER, 2026

This module is designed for B.Sc. (Agric.) students, it is NQF level 6, it has 12 credits and 120 Notional Hours, and the pre-requisite for this module is none.

1. **Module coordinator: Dr F Thovhogi**
2. **Formant of the module: Monday: 15:00 (Room 01)and Friday:**
3. Four lectures will be presented per week, as follows: **Practicums:** The practical programme is scheduled for the afternoon. Weekly practicum in which students will gain hands-on experience on the propagation of Horticultural crops.

Module Aims

i. To enable students to acquire comprehensive knowledge of the science and art of plant propagation, including the effects of plant physiological reactions, anatomical structure and environmental influences on material in plant propagation.

ii. To encourage learners to develop an interest, understanding, and appreciation of the principles of plant propagation.

Core competencies: Problem solving, critical thinking, self-organization, communication, use of terminology, information processing.

Learning Outcomes

After completion of the course, the students are expected to develop understanding and/or skill in the following areas:

(i) Explain the effect of temperature, water, humidity, and rainfall on plant growth.
(ii) Understand and explain physiological aspects of propagation using seeds, cuttings, grafts, and layers.
(iii) Choose among various propagation systems and techniques for a variety of plant materials to effect efficient and successful plant increase.
(iv) Propagate plants by seed, cuttings, grafts and layering and understand the basis for pathogen-free.
(v) Recognize appropriate practices of sanitation, disease and pest management.
(vi) Describe the principles of plant propagation, sexual and asexual
(vii) Identify, use, and maintain common propagation and nursery tools and equipment.
(viii) Appreciate the importance of and value of record keeping in nursery operation and be familiar with the major components of the cost of production of propagations.

Module Contents

1. General aspects of propagation

1.1 How propagation evolved in human society
1.2 Biology of plant propagation
1.3 Propagation environment
1.3.1 Environmental factors affecting propagation,
1.3.2 Media and containers
1.3.4 Biotic factors and pest management in plant propagation
1.3.4 Post propagation care

2. Seed propagation

2.1 Seed development
2.2 Seed technology (selection, collection, handling and storage)
2.3 Propagation by seed.

3. Vegetative propagation

3.1 Principles of Propagation by Cuttings
3.2 Techniques of propagation by budding and grafting.
3.3 Principles of Grafting and Budding
3.4 Techniques of Budding and grafting
3.5 Layering and Its Natural Modifications
3.6 Propagation by Specialized Stems and Roots

4.Tissue Culture

4.1 Principles and Practices of Clonal Selection
4.2 Cell and Tissue Culture Propagation
4.3 Principles of Tissue Culture and Micropropagation
4.4 Techniques for Micropropagation

Module Delivery

3 Lectures and1 practical session per week

Student presentation

Objective: The objective of the student presentation is to help students learn about the various propagation techniques and their application in agriculture.

Presentation: students need to write the presentation in Microsoft Word and present their project using PowerPoint format.

Hardcopy: One hardcopy of 2 pages of descriptive summary needs to be handed to Dr F Thovhogi before presentation.

S**ubmitting Electronic Files**

All electronic text files must be submitted in **.doc, .docx or .pdf format.** If you do not have Microsoft Word, you can download Open Office Writer for free at http://www.openoffice.org/. This will allow you to open the instruction files, make changes, and **save in .doc or .pdf**. Please name your file using the following convention: **Assignmentname_Yourname.doc.** Thus, if my name was Rendani Mudau and I was submitting the "***Landscape design" assignment***, I would rename the "LandscapeDesign.doc" file as "**LandscapeDesign _RendaniMudau.doc**".

Assessment Method and Weighting

Continuous assessment of content (3 tests per semester, 60%, quizzes; not less than five quizzes 5%, practical, 20%, and assignment 10% and class presentation 5%) 60%. Examination of content 40 %

Recommended Reading List:

1. Plant Propagation: Fred T. Davies, Jr. Robert L. Geneve & Sandra B. Wilson 2018. Hartman & Kester's Plant Propagation Principles and Practices, 9th ed. Pearson New International Edition. ISBN-10:1-292-02088-1. ISBN-13: 978-0-13-448089-3

2. Hartmann HT, Kester DE, Geneve. 2014. Hartmann & Kester's Plant Propagation Principles and Practices, Upper Saddle River (Nueva Jersey, Estados Unidos). 8th ed. Nueva Jersey, Estados Unidos, US State: Prentice Hall; 2011:915.

Number of lectures	Reading Topics **READING ASSIGNMENTS** You are expected to read the assigned chapters before each lecture period. Start a good reading habit early in the course and continue it throughout the semester. The lectures may not cover all the information in each chapter; however, some quiz and exam questions will be asked from the reading assignments.	

Lecture schedule

Lecture 1 & 2	Plant propagation-introduction	Chapter 1
Lecture 2,3 & 4	Biology of propagation	Chap 2
Lecture 5 & 6	Propagation environment and facilities	Chapter 3
Lecture 7 &8	Development of seed	Chapter 4
Lecture 9 &10	Principles and practices of seed selection	Chapter 5
	Test 1	
Lecture 11&12	Seed production and handling	Chapter 6
Lecture 13 &14	Principles of propagation from seed	Chapter 7
Lecture 15 &16	Techniques of propagation by seed	Chapter 8
Lecture 17&18	Principles of propagation by cuttings	Chapter 9
Lecture19 & 20	Techniques of propagation by cuttings	Chapter 10
Lecture 21 & 22	Principles of grafting and budding	Chapter 11
	Test 2	
Lecture 23	Techniques of grafting and budding	Chapters 12 &13
Lecture 24	Propagation by layering	Chapter 14
Lecture 25	Propagation by specialized stems and roots	Chapter 15
Lecture 26	Principles and practices of clonal propagation	Chapter 16
Lecture 27	Principles to tissue culture and micropropagation	Chapter 17
Lecture 28	Techniques of micropropagation	Chapter 18
	Test 3	

Order and topics subject to change